

## RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/518,752  
Source: PST  
Date Processed by STIC: 1-10-05

# ***ENTERED***



PCT

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/518,752

DATE: 01/10/2005

TIME: 15:26:56

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\01102005\J518752.raw

```

3 <110> APPLICANT: Monsanto Technology, LLC
5 <120> TITLE OF INVENTION: THIOESTERASE-RELATED NUCLEIC ACID SEQUENCES AND METHODS OF
USE FOR THE
6 PRODUCTION OF PLANTS WITH MODIFIED FATTY ACID COMPOSITION
W--> 7 <130> FILE REFERENCE: 16518.128
C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/518,752
C--> 9 <141> CURRENT FILING DATE: 2004-12-21
9 <160> NUMBER OF SEQ ID NOS: 20
11 <170> SOFTWARE: PatentIn version 3.1
13 <210> SEQ ID NO: 1
14 <211> LENGTH: 4086
15 <212> TYPE: DNA
16 <213> ORGANISM: Glycine max
18 <220> FEATURE:
19 <223> OTHER INFORMATION: soybean FATB genomic clone
21 <400> SEQUENCE: 1
22 ttagggaaac aacaaggacg caaaatgaca caatagccct tcttccctgt ttccagcttt 60
24 tctccttctc tctctccatc ttcttcttct tcttcaactca gtcaggtaacg caaacaacatc 120
26 tgctattcat tcattcatc ctctttctct ctgatcgcaa actgcacctc tacgctccac 180
28 tcttctcatt ttctcttctt ttctcgtctc tcagatccaa ctctcagat aacacaagac 240
30 caaaccgcgt ttttctgcat ttctagacta gacgttctac cggagaagggt tctcgattct 300
32 tttctctttt aactttattt ttaaaataat aataatgaga gctggatgcg tctgttcggt 360
34 gtgaatttcg aggcaatggg gttctcattt tcgttacagt tacagattgc attgtctgct 420
36 ttctcttctt cccttgtttc ttgacctgt ctgatttttc gtttttattt cttactttta 480
38 atttttgggg atggatattt tttctgcatt ttttcggttt gcgatgtttt caggattccg 540
40 attccgagtc agatctgcgc cggtctatac gacgaatttg ttcttattcg caacttttcg 600
42 cttgattggc ttgttttacc tctggaatct cacacgtgat caaataagcc tgctatttta 660
44 gttgaagtag aatttgttct ttatcgaaa gaattctatg gatctgttct gaaattggag 720
46 ctactgtttc gagttgctat tttttttagt agtattaaga acaagtttgc cttttatttt 780
48 acattttttt cctttgcttt tgccaaaagt ttttatgac actctcttct gtttgtgata 840
50 taactgatgt gctgtgctgt tattatttgt tatttgggtg gaagtataat tttttgggtg 900
52 aacttgagc atttttagtc cgattgattt ctcgatatca ttaaggcta aggttgacct 960
54 ctaccacgcg tttgcgtttg atgttttttc catttttttt ttatctcata tcttttacag 1020
56 tgtttgccta tttgcatttc tcttctttat cccctttctg tggaaagggtg ggagggaaaa 1080
58 tgtatttttt tttctcttct taacttgctg atattttgca tgcagcgacc ttagaaattc 1140
60 attatggttg caacagctgc tacttcatca ttttccctg ttacttcacc ctgcgccgac 1200
62 tctgggtggg caggcagcaa acttggtggt gggcctgcaa acctggagg actaaaatcc 1260
64 aaatctgcgt cttctggtgg cttgaaggca aaggcgcaag ccccttcgaa aattaatgga 1320
66 accacagttg ttacatctaa agaaggcttc aagcatgatg atgatctacc ttgcctccc 1380
68 ccagaaactt ttatcaacca gttgcctgat tggagcatgc ttcttgctgc tatcacaaca 1440
70 attttcttgg ccgctgaaaa gcagtggatg atgcttgatt ggaagccacg gcgacctgac 1500
72 atgcttattg acccctttgg gataggaaaa attgttcagg atggtcttgt gttccgtgaa 1560
74 aacttttcta ttagatcata tgagattggt gctgatcgta ccgcatctat agaaacagta 1620
76 atgaaccatt tgcaagtaag tccgtcctca tacaagtga tctttatgat cttcagagat 1680

```

## RAW SEQUENCE LISTING

DATE: 01/10/2005

PATENT APPLICATION: US/10/518,752

TIME: 15:26:56

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\01102005\J518752.raw

```

78 gagtatgctt tgactaagat agggctgttt atttagacac tgtaattcaa tttcatatat 1740
80 agataaatatc attctgttgt tacttttcat actatattta tatcaactat ttgcttaaca 1800
82 acaggaaact gcacttaatc atgttaaaag tgctgggctt cttggtgatg gctttgggtc 1860
84 cagccagaa atgtgcaaaa agaacttgat atgggtgggt actcggatgc aggttgtggt 1920
86 ggaacgctat cctacatggt tagtcatcta gattcaacca ttacatgtga tttgcaatgt 1980
88 atccatgtta agctgctatt tctctgtcta ttttagtaat ctttatgagg aatgatcact 2040
90 cctaaatata ttcattggtaa ttattgagac ttaattatga gaaccaaact gctttggaaa 2100
92 tttgtctggg atgaaaattg attagataga caagctttat acatgatgaa ctatgggaaa 2160
94 ccttgtgcaa cagagctatt gatctgtaca agagatgtag tatagcatta attacatgtt 2220
96 attagataag gtgacttata cttgtttaat tattgtaaaa atagaagctg atactatgta 2280
98 ttctttgcat ttgttttctt accagttata tataccctct gttctgtttg agtactacta 2340
100 gatgtataaa gaatgcaatt attctgactt cttggtgttg ggttgaagtt agataagcta 2400
102 ttagtattat tatggttatt ctaaactcaa ttatctgaaa ttgtgtgtct atatttgctt 2460
104 caggggtgac atagttcaag tggacacttg ggtttctgga tcaggggaaga atggtatgctg 2520
106 tcgtgattgg cttttacgtg actgcaaac tgggtgaaatc ttgacaagag cttccaggta 2580
108 gaaatcattc tctgtaattt tcttccccct ttccttctgc ttcaagcaaa ttttaagatg 2640
110 tgtatcttaa tgtgcacgat gctgattgga cacaatttta aatctttcaa acatttacia 2700
112 aagttatgga accctttctt ttctctcttg aagatgcaaa ttgttcacga ctgaagtttg 2760
114 aggaaatcat ttgaattttg caatgttaaa aaagataatg aactacatat tttgcaggca 2820
116 aaaacctcta attgaacaaa ctgaacattg tatcttagtt tatttatcag actttatcat 2880
118 gtgtactgat gcatcacctt ggagcttgta atgaattaca tattagcatt ttctgaactg 2940
120 tatgttattg ttttgggtgat ctacagtgtt tgggtcatga tgaataagct gacacggagg 3000
122 ctgtctaaaa ttccagaaga agtcagacag gagataggat cttattttgt ggattctgat 3060
124 ccaattctag aagaggataa cagaaaactg actaaacttg acgacaacac agcggattat 3120
126 attcgtaccg gtttaagtgt atgtcaacta gtttttttgt aattgttgtc attaatttct 3180
128 tttcttaaat tatttcagat gttgctttct aattagttta cattatgtat cttcattctt 3240
130 ccagtctagg tggagtgate tagatatcaa tcagcatgtc aacaatgtga agtacattga 3300
132 ctggattctg gaggtatttt tctgttcttg tattctaatc cactgcagtc cttgttttgt 3360
134 tgtaaccaa aggactgtcc tttgattgtt tgcagagtgc tccacagcca atcttgga 3420
136 gtcagtgcct ttcttccgtg acttttagagt ataggaggga gtgtggtagg gacagtgtgc 3480
138 tggattccct gactgctgta tctggggccg acatgggcaa tctagctcac agtggacatg 3540
140 ttgagtgcaa gcatttgctt cgactcgaaa atgggtgctga gattgtgagg ggcaggactg 3600
142 agtggaggcc caaacctatg aacaacattg gtgttgtgaa ccaggttcca gcagaaagca 3660
144 cctaagattt tgaaatggtt aacgggttga gttgcatcag tctccttgct atgttttagac 3720
146 ttattctggc ctctggggag agttttgctt gtgtctgtcc aatcaatcta catatcttta 3780
148 tatecttcta atttgtgtta ctttgggtgg taagggggaa aagctgcagt aaacctcatt 3840
150 ctctctttct gctgctccat atttcatttc atctctgatt gcgctactgc taggtgtct 3900
152 tcaatattta attgcttgat caaatagct aggcattgat attattatc tttctcttg 3960
154 gctcaattaa agatgcaatt ttcattgtga acacagcata actattatc ttattatttt 4020
156 tgtatagcct gtatgcacga atgactgtc catccaatac aaccgtgatt gtatgctcca 4080
158 gctcag
161 <210> SEQ ID NO: 2
162 <211> LENGTH: 104
163 <212> TYPE: DNA
164 <213> ORGANISM: Glycine max
166 <220> FEATURE:
167 <223> OTHER INFORMATION: soybean FATB intron I
169 <400> SEQUENCE: 2
170 caaatctgct attcattcat tcattcctct ttctctctga tcgcaaacctg cacctctacg 60

```

## RAW SEQUENCE LISTING

DATE: 01/10/2005

PATENT APPLICATION: US/10/518,752

TIME: 15:26:56

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\01102005\J518752.raw

```

172 ctccactctt ctcatcttct ctcccttctt cgcttctcag atcc 104
175 <210> SEQ ID NO: 3
176 <211> LENGTH: 839
177 <212> TYPE: DNA
178 <213> ORGANISM: Glycine max
180 <220> FEATURE:
181 <223> OTHER INFORMATION: soybean FATB intron II
183 <400> SEQUENCE: 3
184 ctcgattctt ttctcttcta actttatttt taaaataata ataatgagag ctggatgcgt 60
186 ctgttcgttg tgaatttcga ggcaatgggg ttctcatttt cgttacagtt acagattgca 120
188 ttgtctgctt tcctcttctc ccttgcttct ttgccttgct tgatttttcg tttttatttc 180
190 ttacttttaa tttttgggga tggatatttt ttctgcattt ttccggtttg cgatgttttc 240
192 aggattccga ttccgagtcg gatctgcgcc ggcttatacg acgaatttgt tcttattcgc 300
194 aacttttcgc ttgattggct tgttttacct ctggaatctc acacgtgatc aaataagcct 360
196 gctatttttag ttgaagtaga atttgttctt tatcggaag aattctatgg atctgttctg 420
198 aaattggagc tactgtttcg agttgctatt ttttttagta gtattaagaa caagtttgc 480
200 ttttatttta ctttttttc ctttgctttt gccaaaagtt tttatgatca ctctcttctg 540
202 tttgtgatat aactgatgtg ctgtgctgtt attatttgtt atttggggtg aagtataatt 600
204 ttttgggtga acttgagca tttttagtcc gattgatctc tcgatatcat ttaaggctaa 660
206 gggtgacctc taccacgcgt ttgcgtttga tgttttttcc attttttttt tatctcatat 720
208 cttttacagt gtttgccat ttgcatttct cttctttatc ccctttctgt ggaagggtggg 780
210 agggaaaatg tatttttttt ttctcttcta acttgcgat attttgcatt cagcgacct 839
213 <210> SEQ ID NO: 4
214 <211> LENGTH: 169
215 <212> TYPE: DNA
216 <213> ORGANISM: Glycine max
218 <220> FEATURE:
219 <223> OTHER INFORMATION: soybean FATB intron III
221 <400> SEQUENCE: 4
222 taagtccgct ctcatacaag tgaatcttta tgatcttcag agatgagtat gctttgacta 60
224 agatagggct gtttatttag acactgtaac tcaatttcac atatagataa tatcattctg 120
226 ttgttacttt tcatactata tttatatcaa ctatttgctt aacaacagg 169
229 <210> SEQ ID NO: 5
230 <211> LENGTH: 525
231 <212> TYPE: DNA
232 <213> ORGANISM: Glycine max
234 <220> FEATURE:
235 <223> OTHER INFORMATION: FATB intron IV
237 <400> SEQUENCE: 5
238 gttagtcac tagattcaac cattacatgt gatttgcaat gtatccatgt taagctgcta 60
240 ttctctgtgc tatttttagta atctttatga ggaatgatca ctctaaata tattcatggt 120
242 aattattgag acttaattat gagaacccaaa atgctttgga aatttgtctg ggatgaaaat 180
244 tgattagata cacaagcttt atacatgatg aactatggga aacctgtgc aacagagcta 240
246 ttgatctgta caagagatgt agtatagcat taattacatg ttattagata aggtgactta 300
248 tccttgttta attattgtaa aaatagaagc tgatactatg tattctttgc atttgttttc 360
250 ttaccagtta tatataccct ctgttctgtt tgagtactac tagatgtata aagaatgcaa 420
252 ttattctgac ttcttggtgt tgggttgaag ttagataagc tattagtatt attatggtta 480
254 ttctaaatct aattatctga aattgtgtgt ctatatttgc ttcag 525
257 <210> SEQ ID NO: 6

```

## RAW SEQUENCE LISTING

DATE: 01/10/2005

PATENT APPLICATION: US/10/518,752

TIME: 15:26:56

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\01102005\J518752.raw

```

258 <211> LENGTH: 389
259 <212> TYPE: DNA
260 <213> ORGANISM: Glycine max
262 <220> FEATURE:
263 <223> OTHER INFORMATION: FATB intron V
265 <400> SEQUENCE: 6
266 gtagaaatca ttctctgtaa ttttccttcc cctttccttc tgcttcaagc aaattttaag      60
268 atgtgtatct taatgtgcac gatgctgatt ggacacaatt ttaaattctt caaacattta      120
270 caaaagtatt ggaacccttt cttttctctc ttgaagatgc aaatttgtca cgactgaagt      180
272 ttgaggaaat catttgaatt ttgcaatggt aaaaaagata atgaactaca tattttgcag      240
274 gcaaaaacct ctaattgaac aaactgaaca ttgtatctta gtttatttat cagactttat      300
276 catgtgtact gatgcatcac cttggagctt gtaatgaatt acatattagc attttctgaa      360
278 ctgtatgtta tggttttggt gatctacag                                     389
281 <210> SEQ ID NO: 7
282 <211> LENGTH: 106
283 <212> TYPE: DNA
284 <213> ORGANISM: Glycine max
286 <220> FEATURE:
287 <223> OTHER INFORMATION: FATB intron VI
289 <400> SEQUENCE: 7
290 tatgtcaact agtttttttg taattgttgt cattaatttc ttttcttaaa ttatttcaga      60
292 tgttgctttc taattagttt acattatgta tcttcattct tccagt                                     106
295 <210> SEQ ID NO: 8
296 <211> LENGTH: 82
297 <212> TYPE: DNA
298 <213> ORGANISM: Glycine max
300 <220> FEATURE:
301 <223> OTHER INFORMATION: FATB intron VII
303 <400> SEQUENCE: 8
304 gtatttttct gttcttgtat tctaattcac tgcagtcctt gttttgttgt taaccaaagg      60
306 actgtccttt gattgtttgc ag                                     82
309 <210> SEQ ID NO: 9
310 <211> LENGTH: 328
311 <212> TYPE: PRT
312 <213> ORGANISM: Glycine max
314 <220> FEATURE:
315 <223> OTHER INFORMATION: soybean FATB enzyme
317 <400> SEQUENCE: 9
318 Met Glu Glu Gln Leu Leu Ala Ala Ile Thr Thr Ile Phe Leu Ala Ala
319   1             5             10             15
321 Glu Lys Gln Trp Met Met Leu Asp Trp Lys Pro Arg Arg Pro Asp Met
322             20             25             30
324 Leu Ile Asp Pro Phe Gly Ile Gly Lys Ile Val Gln Asp Gly Leu Val
325             35             40             45
327 Phe Arg Glu Asn Phe Ser Ile Arg Ser Tyr Glu Ile Gly Ala Asp Arg
328             50             55             60
330 Thr Ala Ser Ile Glu Thr Val Met Asn His Leu Gln Glu Thr Ala Leu
331 65             70             75             80
333 Asn His Val Lys Ser Ala Gly Leu Leu Gly Asp Gly Phe Gly Ser Thr

```

## RAW SEQUENCE LISTING

DATE: 01/10/2005

PATENT APPLICATION: US/10/518,752

TIME: 15:26:56

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\01102005\J518752.raw

```

334      85      90      95
336 Pro Glu Met Cys Lys Lys Asn Leu Ile Trp Val Val Thr Arg Met Gln
337      100      105      110
339 Val Val Val Glu Arg Tyr Pro Thr Trp Gly Asp Ile Val Gln Val Asp
340      115      120      125
342 Thr Trp Val Ser Gly Ser Gly Lys Asn Gly Met Arg Arg Asp Trp Leu
343      130      135      140
345 Leu Arg Asp Ser Lys Thr Gly Glu Ile Leu Thr Arg Ala Ser Ser Val
346 145      150      155      160
348 Trp Val Met Met Asn Lys Leu Thr Arg Arg Leu Ser Lys Ile Pro Glu
349      165      170      175
351 Glu Val Arg Gln Glu Ile Gly Ser Tyr Phe Val Asp Ser Asp Pro Ile
352      180      185      190
354 Leu Glu Glu Asp Asn Arg Lys Leu Thr Lys Leu Asp Asp Asn Thr Ala
355      195      200      205
357 Asp Tyr Ile Arg Thr Gly Leu Ser Pro Arg Trp Ser Asp Leu Asp Ile
358      210      215      220
360 Asn Gln His Val Asn Asn Val Lys Tyr Ile Gly Trp Ile Leu Glu Ser
361 225      230      235      240
363 Ala Pro Gln Pro Ile Leu Glu Ser His Glu Leu Ser Ser Met Thr Leu
364      245      250      255
366 Glu Tyr Arg Arg Glu Cys Gly Arg Asp Ser Val Leu Asp Ser Leu Thr
367      260      265      270
369 Ala Val Ser Gly Ala Asp Met Gly Asn Leu Ala His Ser Gly His Val
370      275      280      285
373 Glu Cys Lys His Leu Leu Arg Leu Glu Asn Gly Ala Glu Ile Val Arg
374      290      295      300
376 Gly Arg Thr Glu Trp Arg Pro Lys Pro Val Asn Asn Phe Gly Val Val
377 305      310      315      320
379 Asn Gln Val Pro Ala Glu Ser Thr
380      325
383 <210> SEQ ID NO: 10
384 <211> LENGTH: 1856
385 <212> TYPE: DNA
386 <213> ORGANISM: Glycine max
388 <220> FEATURE:
389 <223> OTHER INFORMATION: soybean FATB partial genomic clone
391 <400> SEQUENCE: 10
392 ttaggggaaac aacaaggacg caaaatgaca caatagccct tcttccctgt ttccagcttt 60
394 tctcctttctc tctctccatc ttcttcttct tcttcactca gtcaggtagc caaacaatc 120
396 tgctattcatc tcattcattc ctctttctct ctgatcgcaa actgcacctc tacgctccac 180
398 tcttctcatt ttctcttctc ttctcgcttc tcagatccaa ctctcagat aacacaagac 240
400 caaaccgct ttttctgcat ttctagacta gacgttctac cggagaagggt tctcgattct 300
402 tttctctttt aactttattt ttaaaataat aataatgaga gctggatgcg tctgttcggt 360
404 gtgaatttcg aggcaatggg gttctcattt tcgttacagt tacagattgc attgtctgct 420
406 ttctctttct cccttgtttc tttgccttgt ctgatttttc gtttttattt cttactttta 480
408 atttttgggg atggatattt tttctgcatt ttttcggttt gcgatgtttt caggattccg 540
410 attccgagtc agatctgcgc cggcttatac gacgaatttg ttcttattcg caacttttcg 600
412 cttgattggc ttgttttacc tctggaatct cacacgtgat caaataagcc tgctatttta 660

```

RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/10/518,752

DATE: 01/10/2005  
TIME: 15:26:57

Input Set : A:\PTO.FG.txt  
Output Set: N:\CRF4\01102005\J518752.raw

Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete,  
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:11,12,13,14,15,16,17,18,19

**VERIFICATION SUMMARY**

DATE: 01/10/2005

PATENT APPLICATION: US/10/518,752

TIME: 15:26:57

Input Set : A:\PTO.FG.txt

Output Set: N:\CRF4\01102005\J518752.raw

L:7 M:283 W: Missing Blank Line separator, <130> field identifier  
L:9 M:270 C: Current Application Number differs, Replaced Current Application No  
L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date